

Procedures, Rules and Regulations

for

Graduate Students

Fall 2008

The following is a review of various procedures and requirements for physics graduate students. It is subject to change and it does not supersede the catalog. Where there is disagreement between this and the catalog, the catalog applies. This description is meant to be helpful and indicative of practice rather than a legal description of rules. Another source of information is the *Graduate Student Handbook*.

REGISTRATION

1. Professor Licini will be your academic advisor until you have a Ph.D. dissertation advisor. Registration questions or problems should be brought to him. He is also responsible for monitoring your progress. All faculty members are willing to give you advice.
2. Professor DeLeo is responsible for TA assignments and office assignments.
3. You must register two times each calendar year. Check the catalog for deadline dates.

GRADES

As you are aware, graduate students are expected to perform at a higher grade level than undergraduates. Thus, a grade of C is considered poor performance for a graduate student. There is a "4-C rule" which states that a graduate student who receives MORE THAN four C's cannot continue to register. A grade of incomplete (N) must be removed within 12 months of the end of the semester of registration or all equity in the course is forfeited.

M.S. PROGRAM

1. The following courses, unless an approved equivalent course has been taken previously, constitute the MS program.

Phy 369 - Quantum I (3)	Phy 420 - Mechanics (3)
Phy 424 - Quantum II (3)	Phy 421 - E&M I (3)
Phy 442 - Stat. Mech. (3)	Phy 422 - E&M II (3)
Phy 428 - Math. Phys. (3)	Phy 491 - Research (3)

plus two additional courses selected from 300 and 400 level courses in Physics or related fields. These courses must be approved by the graduate advisor. A total of 30 credit hours are required for the M.S. degree.

2. **Phy 491 Research** is a project done under the supervision of a faculty member. A student typically carries out his or her project during the summer following the first year of graduate work. The following procedure will be used to match students with faculty interested in directing a research project:

Late in the fall semester, Professor Huennekens will distribute a partial list of available projects. By late February, students will submit an ordered list of choices of prospective faculty advisors to Professor Huennekens. The actual assignments will be made based upon the student's academic record, faculty input, and other criteria.

The commitment of a faculty member and a student to a Phy 491 project does not imply any further commitment by either party to a continuation of the research project beyond the summer.

3. An **MS-program form** (obtained from the secretary) should be submitted after completing 15 cr. hrs. The form is to be approved by Prof. DeLeo and then by the Assistant Dean for Graduate Studies, College of Arts & Sciences.
4. An **APPLICATION FOR DEGREE** must be filed with the registrar at the beginning of the semester in which the degree is to be conferred. You must be registered as a student to receive a degree.

Ph.D. QUALIFYING EXAMS

1. Qualifying exams will be scheduled at the start of the spring semester. All students entering with a bachelor's degree in physics are expected to take these exams after completing one and a half years of graduate work. Students entering with a master's degree in physics are expected to take the exams during their second semester of residence at Lehigh.

2. The exams presuppose course work through the first three semesters and consist of three separate exams. The material to be tested includes topics covered in core courses during the first three semesters of graduate study (Quantum I & II, Math Physics I, Classical Mechanics, E&M I & II, and Stat. Mech.) as well as additional material from these areas as well as others normally mastered by Ph.D. students at this level. Sample exams may be obtained from Lois Groff, and questions can be directed to Prof. A. Kanofsky, chairman of the qualifying exam committee.

The exams consist of three parts:

- a) Classical Physics - four hours
 - b) Modern Physics - four hours
 - c) Oral exam - two thirty minute sessions
3. A student who does not pass the exam on the first attempt must retake the exam during the following June. The Ph.D. Qualifying Exams may be taken only twice. (*Except, see (4) below.*)
 4. First-year graduate students are allowed to take a "free shot" at the written parts of the Qualifying Exam in January. If a student's score is sufficiently high he/she will also be invited to participate in the oral examinations. A first-year student who passes both written and oral exams will have completed the qualifying exam requirements and his/her progress towards the Ph.D. degree will be substantially accelerated. There is no penalty for not passing the "free shot".

DISSERTATION ADVISOR

Normally, soon after passing the qualifying examination, a student will begin the search for a suitable dissertation topic and a faculty advisor to direct his or her research project. This will be one of the most important steps you take in your career. The actual process is similar to that of a student seeking an advisor for his or her Phy 491 research project, except that the degree of commitment on the part of both student and professor is far more significant.

The faculty will try to keep students apprised of the activities and research projects that are available in the department, but it is the student's responsibility to acquire enough information to make a choice of dissertation project. You should talk to several professors, participate in group meetings held by some of the research groups, and consult with previous and current graduate students about their research experiences.

Though collectively the faculty has an obligation to provide dissertation direction for all students making satisfactory progress, individual faculty are not required to accept as dissertation students each and every student who requests to work with them, and a student/faculty collaboration on a Phy 491 research project is never a commitment by either party to a

continued relationship. In addition, students who are making less than satisfactory progress may find it more difficult to find a faculty member willing to direct their dissertation work.

Students are reminded that their achievements in graduate study at Lehigh can provide a substantial beginning for a very successful career in physics. Subsequent success in the job market will depend upon their accomplishments as measured relative to other young Ph.D.'s from quality programs.

Ph.D. CANDIDACY

A student should file an APPLICATION FOR CANDIDACY no later than TWO YEARS after passing the qualifying exam, and preferably sooner. The steps involved are:

DISSERTATION ADVISOR

DEADLINE - Semester following the 2nd Summer.

The student must obtain agreement from a faculty member to serve as director of his or her dissertation research.

Ph.D. DISSERTATION PROPOSAL

DEADLINE - Last class day of SPRING Semester of Year 3.

The fall semester of the third year will normally be spent preparing a proposal for dissertation research. The proposal must be approved by the advisor no later than the end of classes during the Spring semester.

DOCTORAL COMMITTEE

DEADLINE - Last class day of SPRING Semester of Year 3.

The student must form a committee AND have a meeting during this semester. The doctoral committee will consist of at least four faculty. After the student has obtained approval of his or her proposal from the dissertation advisor, the student will find at least three additional faculty willing to serve on the Ph.D. committee. Members of the committee must be acceptable to the advisor and must be approved by the Assistant Dean for Graduate Studies, College of Arts & Sciences. A committee normally consists of the advisor, three physics faculty, and one professor from outside the department. (The "outside" professor is a requirement.) In addition, Ph.D. scientists from outside the university may serve on the committee. A minimum of four committee members, including the professor from outside physics, must be voting members of the faculty of Lehigh University. The dissertation advisor is normally the chair of the committee.

**Ph.D.
PROGRAM**

DEADLINE - The program is normally prepared and presented to the committee at the 1st meeting.

To apply for candidacy, the student must submit a program which consists of the following:

1. A formal application obtained from the office of the College of Arts & Sciences. (You will need SEVEN (7) copies of the proposal and the Ph.D. program, plus the completed application form. Each member of the committee must sign the first of the seven copies. This material is then submitted to the Dean of the College of Arts & Sciences.)
2. A list of all graduate courses taken and to be taken, including those taken at other institutions. A total of **39** course credits is required for the Ph.D. degree. Of these, at least **24** credits must be 400-level physics courses. The other 15 credits may include any 300 or 400 level physics courses (excluding 492 and 499). 300 or 400 level courses outside the department can count towards the 39 credits (but not towards the 24 credits) if they have been approved by the dissertation committee.
3. Phy 364 is required. (This requirement may only be waived for students who have obtained a B+ or better in a comparable advanced undergraduate or graduate course).
4. The General Exam course requirement (*see below*): one 300 or 400 level advanced physics course outside the area of research specialization, and outside of the core curriculum is required. Of course, students are encouraged to take courses in addition to this minimum requirement.
5. Also include a statement that the Qualifying Exam has been passed, and provide a list of committee members.

**PRESENTATION
of PROPOSAL**

DEADLINE: By the last class day of the SPRING Semester of Year 3.

The student's proposal for research must be signed by members of the student's committee following an oral presentation to the committee wherein the committee will assess the suitability of the project and the likelihood that the student will be able to successfully complete it.

YEARLY COMMITTEE MEETINGS

After the proposal has been accepted and the General Exam (*see below*) has been passed, students must continue to hold annual dissertation committee meetings, starting in the Spring of year 4. The deadline for these meetings is the last class day of the Spring semester.

The committee may require additional courses and language proficiency, as it deems appropriate.

GENERAL EXAM

The purpose of the General Exam is to determine whether or not the student is knowledgeable in his or her chosen area of specialization. The specifics of the General Exam (in addition to the course requirement below) will be determined by the student's dissertation committee on or about the time of their first meeting (Spring, year 3).

The General Exam will be administered by the dissertation committee in a meeting closed to the public. The results of this exam will be transmitted in writing to the student, the student's committee, the department chair, and the Dean of Arts and Sciences (on a special form!).

The General Exam will normally be completed within 1 – 1 ½ years after the student has passed the Ph.D. qualifying exam, and usually follows the admission to candidacy. The departmental deadline is the last day of class in the spring semester of Year 3. The College deadline is no later than seven months prior to the anticipated date of graduation.

If the student does not pass the examination, a re-exam will be scheduled no later than the next semester. The General Exam may be repeated only once.

The General Exam course requirement: ONE 300 or 400 level advanced physics course outside the area of research specialization and outside of the core curriculum is required. (Phy 340, 362, 369, 420, 421, 422, 424, 428, 442, 491, 492, and 499, in addition to courses that are considered by the dissertation committee to be within the research specialization, may NOT be used to complete this requirement). The dissertation committee must approve this course, which must be passed with a grade of B⁰ or better. The course and grade must be entered onto the General Examination form.

Ph.D. DISSERTATION

Research for the dissertation should be started as soon as possible. Typically, completion requires about two years of research plus a semester of writing the dissertation. There are, of course, significant variations. A MAXIMUM time is set by the university requirement that ALL work that is to be part of the student's Ph.D. program MUST be completed within TEN years of the actual degree. Students are strongly discouraged from attempting to complete their dissertations in absentia. The completed dissertation must be written in accordance with style

requirements established by the College of Arts & Sciences and must be submitted (in draft form) to the Assistant Dean for Graduate Studies by the appropriate date (approximately six weeks before graduation; see the catalog for details).

Copies of the dissertation should be distributed to the committee members and a FINAL EXAMINATION scheduled. **The committee should be allowed two weeks to read the dissertation and provide comments. Only after the dissertation is revised and approved by the committee should the defense be scheduled.** The date of the exam must be sent in advance to the Assistant Dean for Graduate Studies, College of Arts & Sciences, Maginnes Hall.

FINAL EXAMINATION

The **Dissertation Defense** will be administered by the Ph.D. committee. Other faculty and students in the university may be invited to attend the public presentation of the dissertation and may participate in questioning. After the public presentation and defense, the committee (with additional invited faculty) will examine the candidate's dissertation further and, by vote of the committee members, determine whether or not the candidate passes.

DISSERTATION DEFENSE FORM - The committee members must indicate their evaluation of the dissertation and must sign this form. (This is usually the front page of the dissertation.)

FINAL DOCTORAL EXAMINATION FORM - In addition, the University requires that a special form called *Report on the Final Doctoral Examination* be completed at this time. The Dissertation Committee must also sign this form and other faculty in attendance are invited to sign as well.

After the dissertation has been successfully defended and revised accordingly, the student must submit the final draft to the Assistant Dean for Graduate Studies for review by the Graduate Committee no later than TWO WEEKS before the degree is to be conferred.

Two unbound copies must be delivered to the Assistant Dean for Graduate Studies, College of Arts & Sciences. One of these must bear the original signatures of the Ph.D. committee members. The candidate must pay a microfilming fee and present a bursar's receipt for the payment.

CLEARANCE

Graduate students must receive clearance from the university prior to the awarding of a degree or prior to resignation from the university. The following obligations must be satisfied:

- All INCOMPLETE (N) grades must be removed.

- The dissertation must be cleared by the Assistant Dean for Graduate Studies, College of Arts & Sciences.
- All financial obligations must be cleared with the bursar, including: Tuition fees, library fines, bookstore charges, motor vehicle fines.
- All library books on loan must be returned.
- The Interdepartmental Clearance Sheet must be completed and signed by the department chairman and facilities services officer and submitted to the registrar at least THREE days prior to graduation.

FINANCIAL SUPPORT

Once you have been accepted for graduate study in Physics at Lehigh, this department will do all it can to provide financial support in the manner of teaching and/or research assistantships and/or fellowships for the first five years you are in graduate school, provided of course satisfactory progress is being made. Satisfactory progress will be measured by course grades, progress in your research project and by your successful execution of the necessary duties required in the Ph.D. program. (e.g. Qualifying Exam - proposal - formation of a Ph.D. committee - candidacy - dissertation defense.)

Progress Review: Each Spring the entire faculty will review the progress of all second-year and beyond graduate students and determine whether or not satisfactory progress is being made. In addition, petitions for support for a sixth year are reviewed at this time.

Renewal of TA Appointments: Appointments of continuing students as teaching assistants is dependent upon satisfactory performance as a teaching assistant as well as satisfactory academic performance.

Petitions for Extension of Support: Students in their fifth year of graduate study at Lehigh who determine that they will not be able to complete the requirements for the Ph.D. within the expected five years will be required to submit to the faculty by April of their fifth year a petition for an extension of support for a sixth year. The form of this petition should be:

- A list of the items yet to be accomplished and the anticipated dates by which these will be completed.
- The endorsement of the student's Ph.D. committee of the feasibility of the plan to complete all requirements within the sixth year. (In order to obtain committee endorsement, the student must convene a formal meeting of the dissertation committee prior to the April faculty meeting.)
- Optionally, the petition may also contain an explanation of extenuating circumstances that may have been a cause of impeded progress towards the degree.

Support beyond the sixth year will not be available except in very extreme situations.

SUMMARY OF SCHEDULE and DEADLINES

Item	Schedule/Deadlines
Ph.D. Qualifying Exam	1st try: January, Year 2 2nd try: June, Year 2*
Proposal (approved by advisor)	Deadline: Last day of spring classes, Year 3
Ph.D. Committee (1st meeting)	Deadline: Last day of spring classes, Year 3
Admission to Candidacy	Normally same as 1st meeting. Deadline: Last day of spring classes, Year 3*
General Exam	Normally Fall or Spring of Year 3 Deadline: Last day of spring classes, Year 3*
YEARLY Committee Meetings	Once per year, beginning Spring, Year 3*
YEARLY progress evaluation by physics faculty	April, beginning Year 3
Limit of support	Five years*

Failure to meet any of the above deadlines marked by an asterisk will result in loss of the registration privilege for the next registration period and/or forfeiture of support until the problem is corrected. Students not registered will not receive any form of financial aid and upon late registration will have to pay a late registration fee to the University. In order to monitor the completion of these requirements, all students must register each semester AND EACH SUMMER with the department by filling out a departmental STATUS FORM. Students unable to meet deadlines for truly extenuating reasons may, of course, petition the faculty for a waiver of the rule.